Power Console Plus

User Guide

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Preface

The User's Guide explains the Power Console Plus utility used to configure the LSI Logic disk array controller.

This manual is intended for persons who are familiar with Windows functions and operation methods. Refer to the Windows Online Help and Manuals for further information.

Read other manuals related to this disk array controller when using Power Console Plus. If using an optional disk array controller, read the manual provided with the disk array controller as well.

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1. Overview

1.1 MAJOR FUNCTIONS

Use Power Console Plus to enable operations (e.g., monitoring and maintenance) of the RAID systems that are constructed on local servers and/or servers connected through networks (TCP/IP). The operations can be done online, on a graphical interface, without stopping the system.

Power Console Plus features the following:

- Configuration by Wizard.
- RAID levels change.
- SAF-TE compatible.
- Performance monitor support.
- Support for enclosure functions, such as temperature monitoring, power monitoring, and fan monitoring.
- Settings of Write, Read, and Cache policies for each logical drive support.
- Save and restore functions for configuration support.
- SCSI transfer rate display support.

1.2 COMPONENTS

Power Console Plus consists of the following six components:

SNMP Agent

Install the SNMP Agent in the server in which the MegaRAID controller is installed.

MegaRAID Service Monitor

Install the MegaRAID Service Monitor in the server in which the MegaRAID controller is installed.

Synchronize Cache Utility

Install the Synchronize Cache Utility in all the servers and management PCs.

MegaRAID Client

Controls the RAID system using a graphical interface.

Install the MegaRAID Client in the server in which the MegaRAID controller is installed or in the management PC that is connected through the server and network.

MegaRAID Server

Enables the control of the MegaRAID controller via the network.

Install the MegaRAID Server in the server in which the MegaRAID controller is installed.

MegaRAID Registration Server

Enables the control of the MegaRAID controller via the network.

Install in one of the servers or management PCs that are connected through the network.

The above components must be installed correctly to establish the environment to use Power Console Plus.

Power Console Plus doesn’t support the Standby/Hibernation state. Do not perform transition to the Standby/Hibernation state.

The Power Console Plus components to be installed are different between the target servers and the management PC.

Server

Server in which the MegaRAID controller is installed

Install the following components in this server:

– SNMP Agent

– MegaRAID Service Monitor

– MegaRAID Client

Management PC

The Management PC monitors and controls the servers via the network (TCP/IP)

Install the following components in the management PC:

– MegaRAID Client

The Management PC does not guarantee operation on a Client which uses Terminal Server, Terminal Server Emulator, or WBT.

Start Power Console Plus on the management PC after powering on the system on which the "Server" or "Management Server" is installed.

Management server

Server that manages all the servers connected to the same network (TCP/IP).

Install the following components in the management server:

– MegaRAID Server

– MegaRAID Registration Server

2. Server Setup

This section explains how to setup the Power Console Plus in the server configuring the RAID system

2.1 OPERATING ENVIRONMENT

This section explains the operating environment required for Power Console Plus.

Hardware

- Machine:
  Server configuring the RAID system
- Memory size:
  Large enough for OS operation + 8MB or more
- Free space of the hard disk:
  10MB or more
- Display unit:
  Screen size 1024 × 768 or larger (If the screen size is 800 × 768 or smaller, the menu buttons may not be displayed. Use the small-sized font.)
- Required peripheral equipment:
  Network Interface Card
  CD-ROM drive
  Pointing device such as a mouse

Software

- Microsoft Windows 2000
- Microsoft Windows 2003 Server

2.2 PREPARATIONS

This section explains the prerequisites for setup.

- The driver for the RAID system must be installed.
- The SNMP service of Windows must be installed.
- The TCP/IP setting for Windows must be completed.
- The update of the system must be completed.
- The machine must be logged on by an Administrator group.

2.3 INSTALLATION

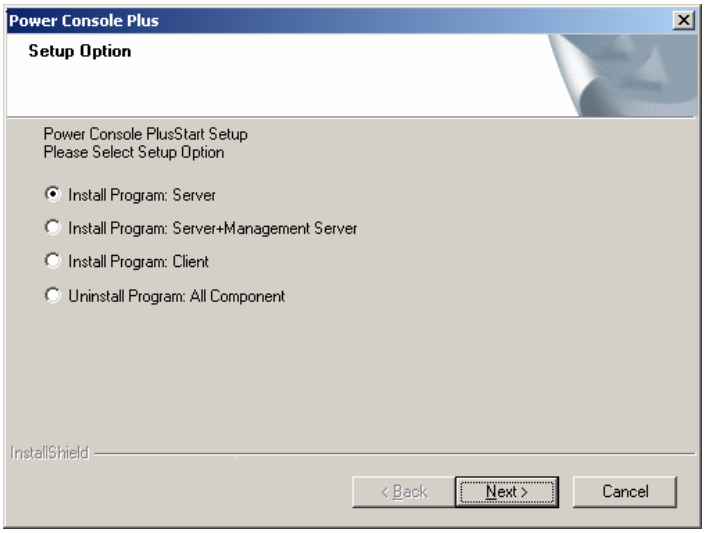
Follow the procedure below to install Power Console Plus:

1. Power on the server to start Windows 2000 / Windows 2003 Server.
2. Set the provided "EXPRESSBUILDER" CD-ROM in the CD-ROM drive.
3. Run "SETUP.EXE" which is in the "ESMPRO\en\PCON" directory.

   [Setup Option] dialog box appears.

4. Select [Install Program: Server] and click [Next].

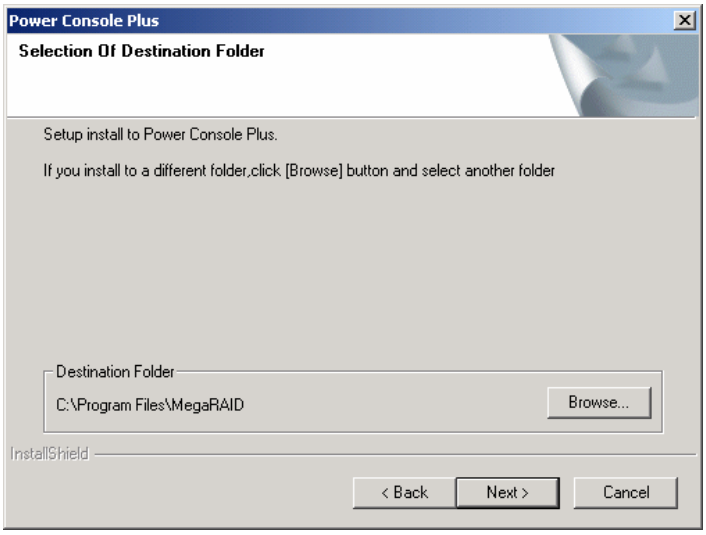
   [Selection Of Destination Folder] dialog box appears.



NOTE: To allow the management server functions on this server, select [Component: Server + Management Server]] and click on [Next] button.

5. Check the installation directory, and click [Next].

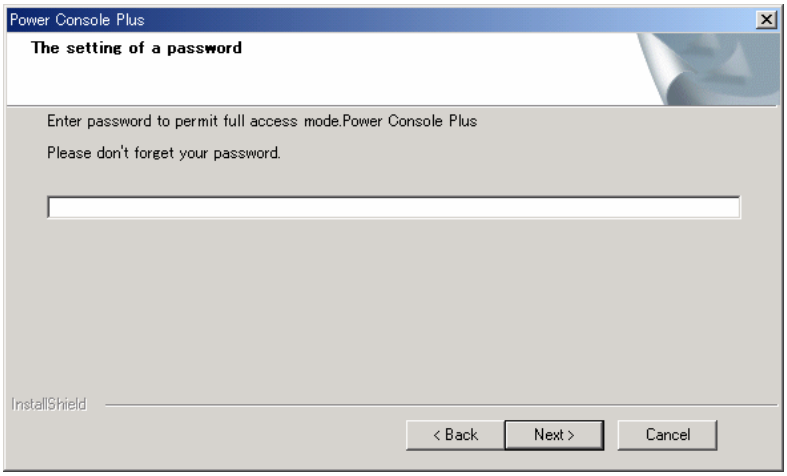
   [The setting of a password] dialog box appears.



NOTE: To change the installation directory, click on [Browse...] and specify the desired directory.

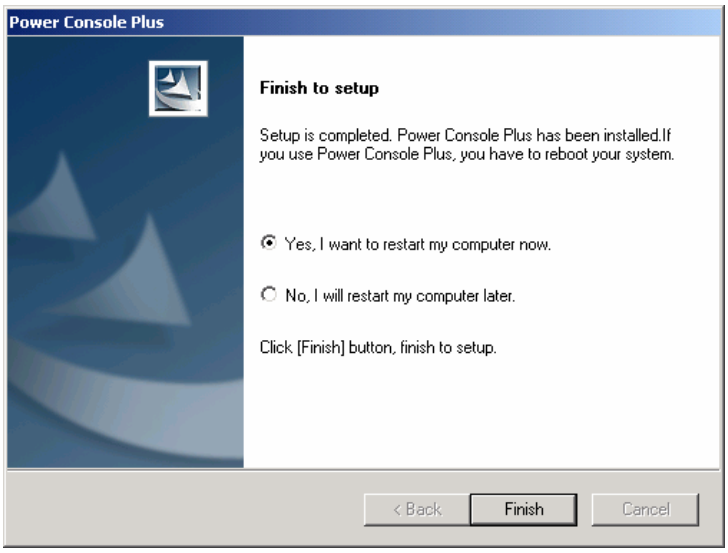
6. Setup a password that will grant full access to Power Console Plus, and click [Next].

   The installation starts. When the automatic setup completes, the [Finish to Setup] screen appears.



7. Select "Yes, I want to restart my computer now" and click [Finish].

   The system restarts.



2.4 ENVIRONMENT SETUP

Set up the environment as explained below.

Setting the HOSTS File

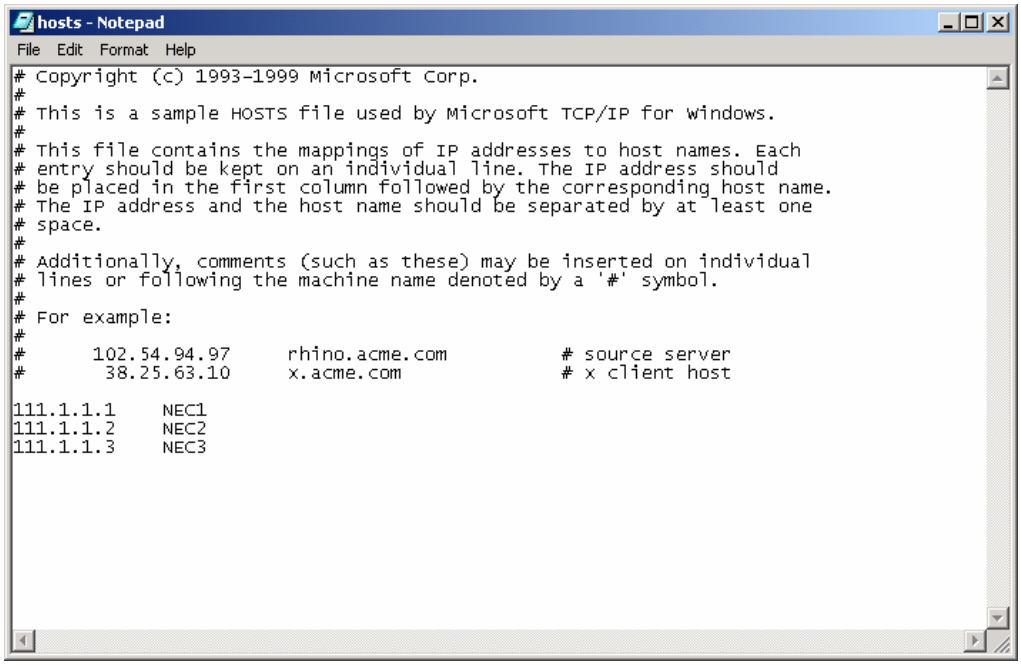
It is mandatory to set the HOSTS file when the control is performed via the network.

Set the server information, management server information, and management PC information of Power Console Plus into the HOSTS file used by TCP/IP for Windows.

- IP addresses and host names of all the servers, management server, and management PCs that are controlled via the network.
- IP address and host name of the management server.

Use a text editor (e.g., notepad) to add the information to the HOSTS file. (Line feed is necessary at the end of the added lines.)

- Windows 2000 path
  C:\Winnt\System32\Drivers\etc\hosts
- Windows 2003 Server
  C:\Windows\System32\Drivers\etc\hosts



Modifying the REGSERV.DAT File

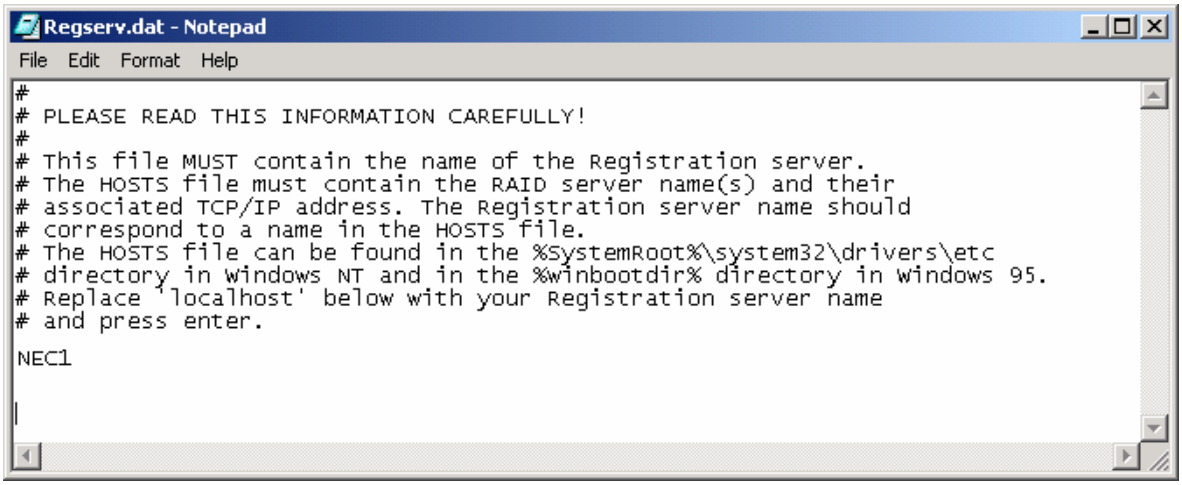
It is mandatory to modify the management server information when the control is performed via the network.

Modify the management server information registered in the REGSERV.DAT file that is provided/browsed by Power Console Plus. (The default host name registered is localhost.)

Host name of the management server

Use a text editor (e.g., notepad) to modify the REGSERV.DAT file. Line feed is necessary at the end of each line.
Please register one host name of the server and management server into REGSERV.DAT file.

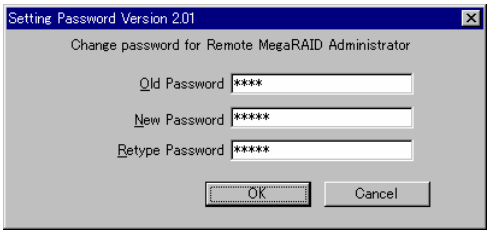
- Windows 2000 path
  C:\Winnt\System32\ Drivers\etc\ regserv.dat.
- Windows 2003 Server path
  C:\Windows\System32\Drivers\etc\regserv.dat.



Changing the password granting the full access

To change the password specified during the installation that grants full access, use the password change tool SETPASS.EXE provided by Power Console Plus.

Execute the password change tool SETPASS.EXE, located in the subfolder "rserver" in the installation destination of Power Console Plus.



Enter the old password in the Old Password field, the new password in the New Password/Retype Password field, and then click [OK].

If you have forgotten the old password, delete the password file RAIDPASS.VAL, and then set the new password by executing the password change tool SETPASS.EXE.

The password file RAIDPASS.VAL is located at the following paths:

- Windows 2000
  C:\Winnt\System32\Drivers\etc\raidpass.val.
- Windows 2003 Server
  C:\Windows\System32\Drivers\etc\raidpass.val.

IMPORTANT: The password file RAIDPASS.VAL is an important file containing the password that grants full access to the Power Console Plus features.

As a security measure, we recommend you change the NTFS file access authority for the password file RAIDPASS.VAL to Administrator authority so that only administrators are permitted to delete/transfer data.

2.5 UNINSTALLING POWER CONSOLE PLUS

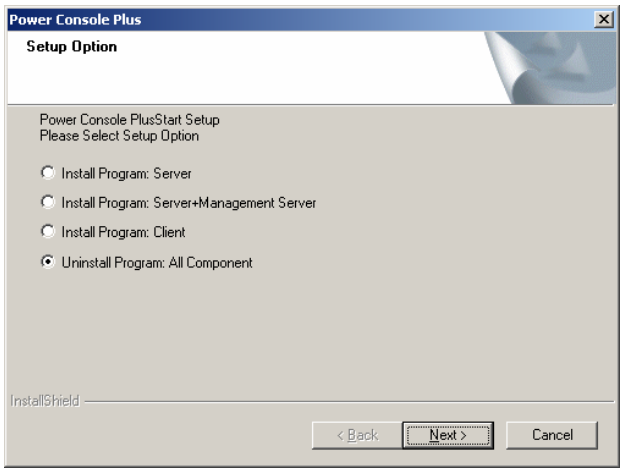
Follow the procedure below to uninstall Power Console Plus:

1. Power on the server and start Windows.
2. Set the "EXPRESSBUILDER" CD-ROM into the drive.
3. Execute "SETUP.EXE" which is in the "ESMPRO\en\PCON" directory.

   The [Select Setup Options] screen appears.

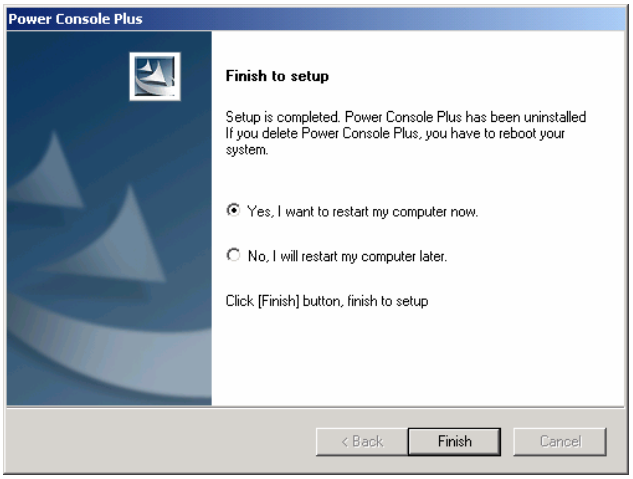
4. Select the [Uninstall Program: All Component], and click [Next].

   The uninstallation starts. When the automatic setup completes, the [Finish to setup] screen appears.



5. Select "Yes, I want to restart my computer now", and click on [Finish].

   The system restarts.



3. Management PC Setup

This section details the Power Console Plus setup in a computer that manages servers via the network (TCP/IP).

3.1 OPERATING ENVIRONMENT

This section explains the operating environment required for Power Console Plus to operate on a management PC.

Hardware

- Machine:
  PC/AT-compatible machine (which contains Intel Pentium or CPU or at least equivalent to it)
- Memory size: Large enough for OS operation + 8MB or more
- Free space of the hard disk: 10MB or more
- Display unit: Screen size 1024 × 768 or larger (If the screen size is 800 × 768 or smaller, the menu buttons may not be displayed. Use the small-sized font.)
- Required peripheral equipment:
  Network Interface card
  CD-ROM drive
  Pointing device such as a mouse

Software

- Microsoft Windows 2003 Server
- Microsoft Windows 2000
- Microsoft Windows NT Version 4.0

  (Windows NT Version 4.0 Service Pack 5 or later + Internet Explorer 4.01 Service Pack 2 or later)
- Microsoft Windows 95/98/Me
  (Internet Explorer 4.01 Service Pack 2 or later)

3.2 PREPARATIONS

The following are required for a correct setup.

- The TCP/IP setting for Windows must be completed.
- The system must have been updated (when a server is used)
- The machine must be logged on by an Administrator group. (Windows 2003 Server/ NT / 2000)
- Power Console Plus must be uninstalled (if installed).

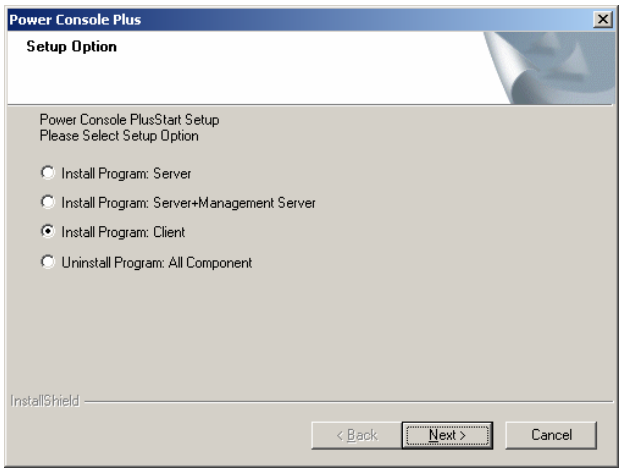
3.3 INSTALLATION

Take the following steps to install Power Console Plus:

1. Power on the server to start Windows.
2. Set the "EXPRESSBUILDER"CD-ROM into the CD-ROM drive.
3. Run "SETUP.EXE" which is in the "ESMPRO\en\PCON" directory.

   The [Setup Option] dialog box appears.
4. Select [Install Program: Management PC] and click [Next].

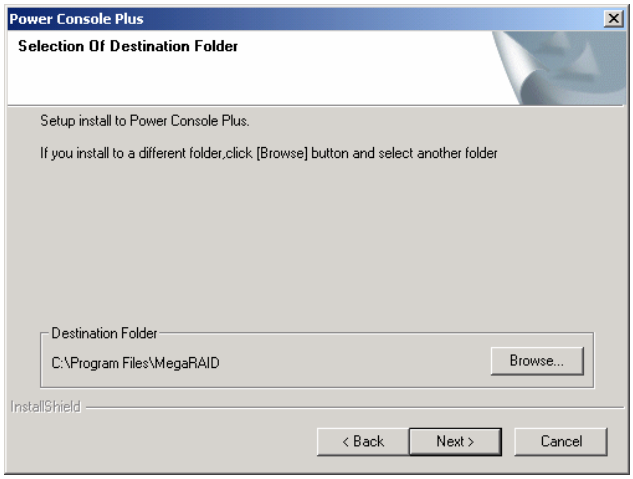
   The [Selection of Destination Folder] dialog box appears.



NOTE: To give management server functions to this server, select [Component: Server + Management Server]] and click on [Next] button.

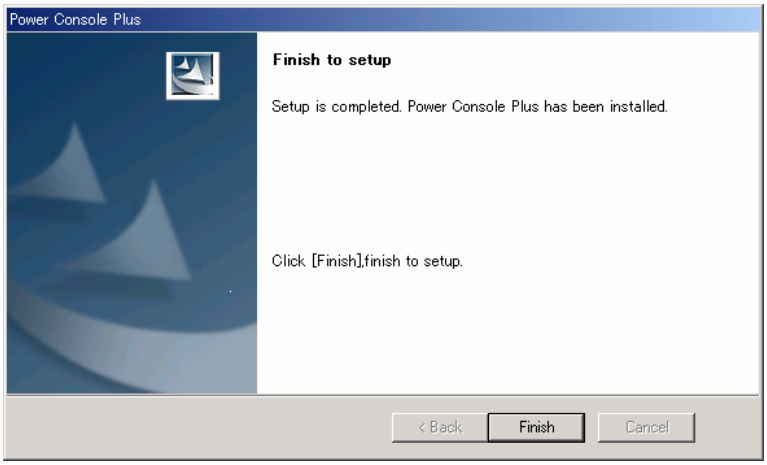
5. Specify the destination directory and click [Next].

The installation starts. When the automatic setup completes, the [Finish to Setup] screen appears.



NOTE: To change the installation directory, click on [Browse...] and specify the desired directory.

6. Click [Finish].



* The screens shown here were captured during an installation on Windows 2000.

3.4 ENVIRONMENT SETUP

Set up the environment as explained below.

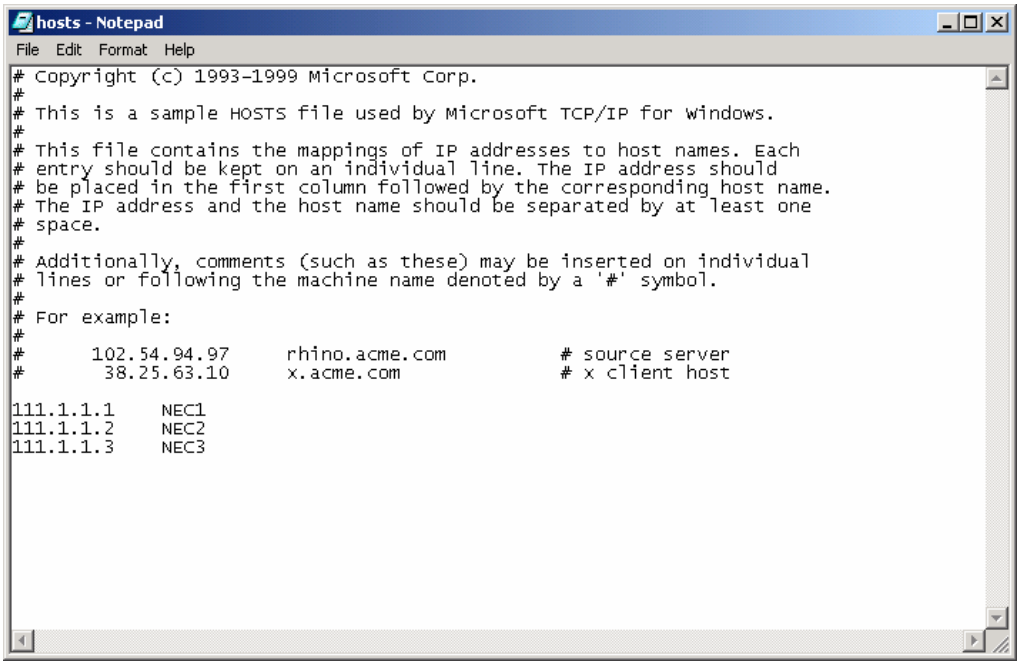
Setting the HOSTS File

Set the server information, management server information, and management PC information of Power Console Plus into the HOSTS file used by TCP/IP for Windows.

- IP addresses and host names of all the servers, management server, and management PCs that are controlled via the network.
- IP address and host name of the management server.

Use a text editor (e.g., notepad) to add the information to the HOSTS file. (Line feed is necessary at the end of the added lines.)

- Windows NT/2000 path
  C:\Winnt\System32\Drivers\etc\hosts
- Windows 95/98/Me path
  C:\Windows\hosts
- Windows 2003 Server
  C:\Windows\System32\Drivers\etc\hosts



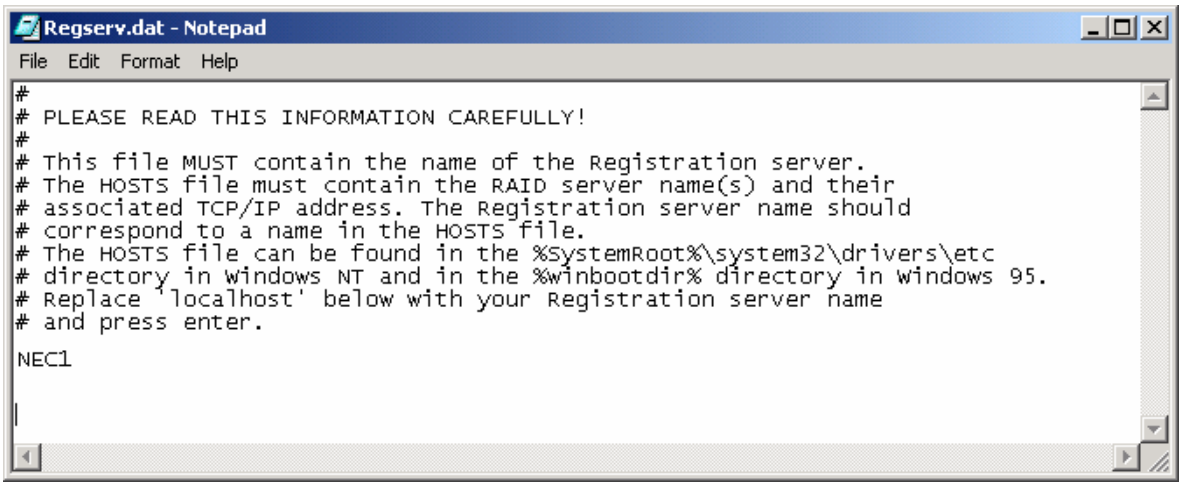
Modifying REGSERV.DAT File

Modify the management server information registered in the REGSERV.DAT file that is provided/browsed by Power Console Plus. (The default host name registered is localhost.)

Host name of the management server

Use a text editor (e.g., notepad) to modify the REGSERV.DAT file. Line feed is necessary at the end of each line.
Please register one host name of the server and management server into REGSERV.DAT file.

- Windows 2000/NT path
  C:\Winnt\System32\ Drivers\etc\ regserv.dat.
- Windows 95/98/Me
  C:\System32\Drivers\etc\regserv.dat
- Windows 2003 Server path
  C:\Windows\System32\Drivers\etc\regserv.dat.



3.5 UNINSTALLING POWER CONSOLE PLUS

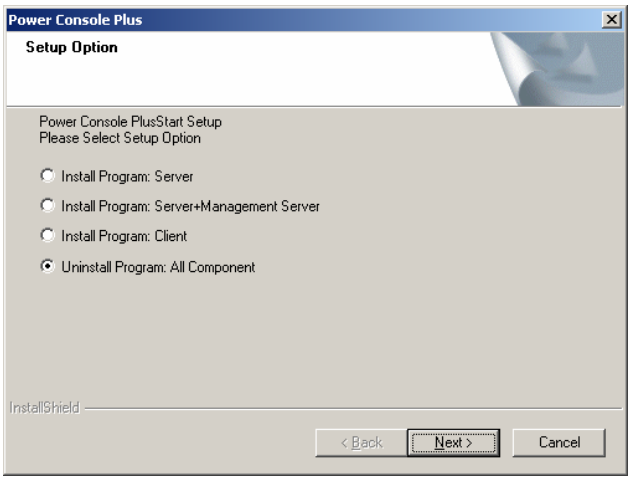
Take the following steps to uninstall Power Console Plus:

1. Power on the server and start Windows.
2. Set the "EXPRESSBUILDER"CD-ROM into the CD-ROM drive.
3. Execute "SETUP.EXE" which is in the "ESMPRO\en\PCON" directory.

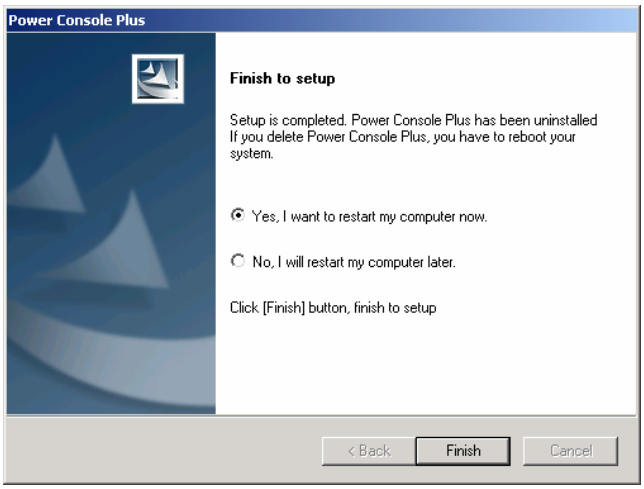
   The [Setup Options] screen appears.

4. Select the [Uninstall Program: All Component], and click [Next].

   The uninstallation starts. When the automatic setup completes, the [Finish to setup] screen appears.



5. Click [Finish].

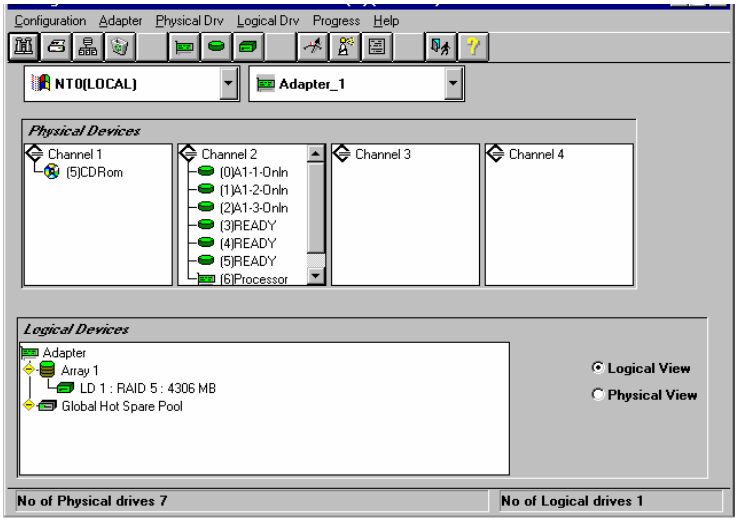


* The screens shown here were captured during an installation on Windows 2000.

4. Power Console Plus Features

This section explains the Power Console Plus features.

The screen shown below appears when Power Console Plus starts.



Power Console Plus Screen Layout

Element	Description
Menu Bar	Select options from the Configuration, Adapter, Physical Drv, Logical Drv, Progress, or Help menus.
Toolbar	Click on a toolbar icon to select an option.
Combo box	Select a controller or server.
Physical Devices View	Displays the physical devices connected to the SCSI Channels.
Logical Devices View	Displays the hot-spare devices and logical drives.
Radio button	Choose Logical View or Physical View on the Logical Devices View.
Bottom	Displays the number of physical drives and logical drives for the array connected to the system.

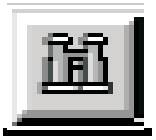
NOTES:

- You cannot choose a different server if a rebuild, Performance Monitor display, or drive reconstruction is in progress.
- You cannot access the new server if Power Console Plus is already running.
- You cannot change from View Only mode to Full Access mode. You must exit Power Console Plus and run Power Console Plus again.
  Choose the server, then choose Full Access mode and enter the password when prompted.

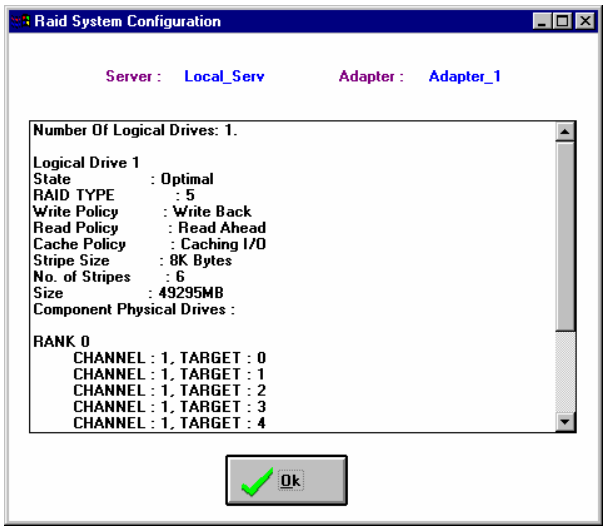
4.1 TOOLBAR ICONS

Power Console Plus includes several toolbar icons at the top of the screen. These icons provide easy access to Power Console Plus features.

Display Configuration Icon



Displays the current RAID system configuration.



Print Icon

Prints the current RAID system configuration.

Wizard Configuration Icon

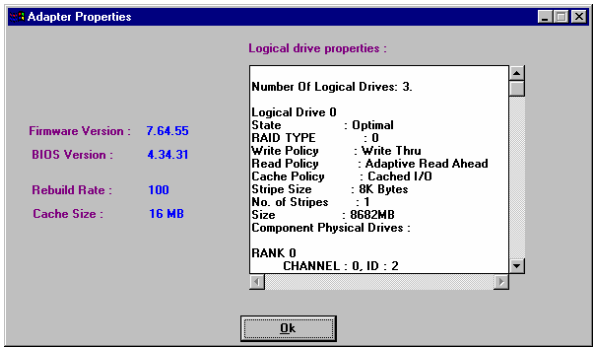
Configures the RAID system.

Clear Configuration Icon

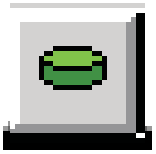
Do not click on this icon. This icon erases the current configuration information.

Adapter Properties Icon

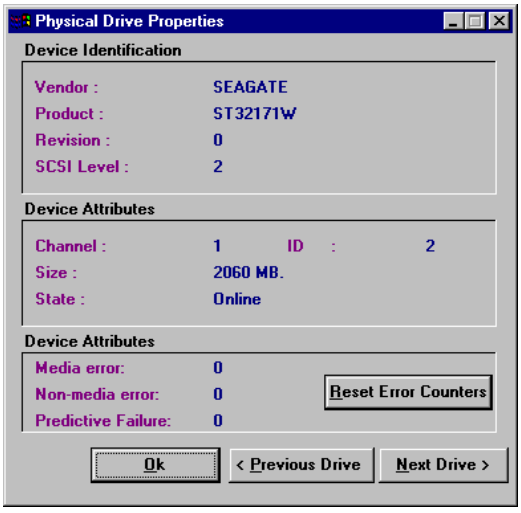
Displays the selected controller properties.



Physical Drive Icon

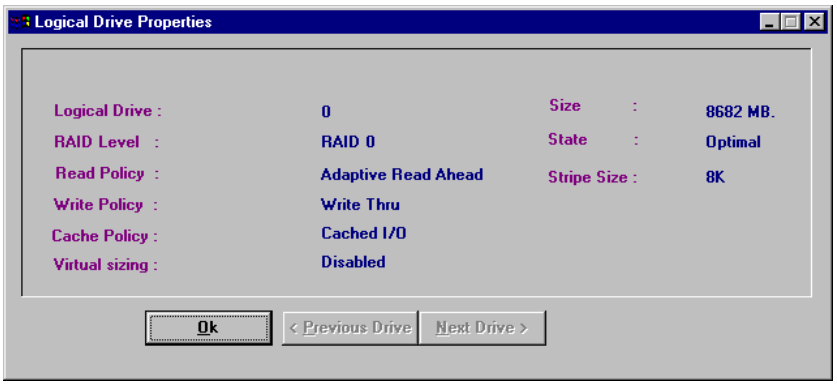


Displays the selected physical drive properties.

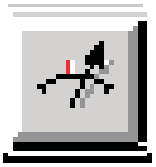


Logical Drive Icon

Displays the selected logical drive properties.

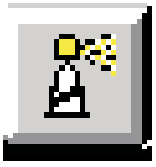


Rebuild Rate Icon



Changes the I/O rate for rebuild or reconstruction.

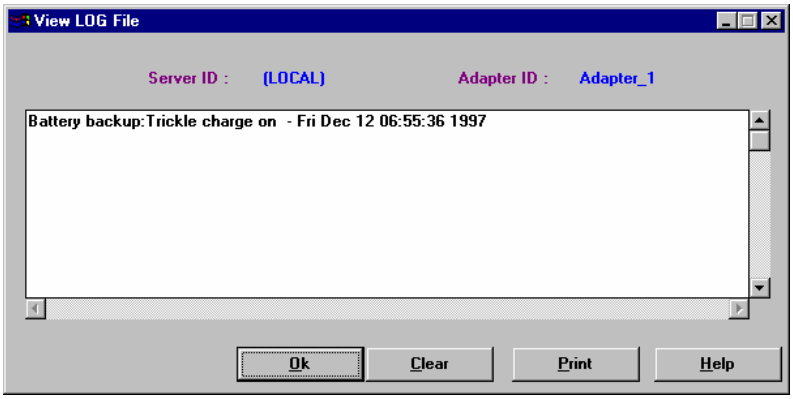
Rescan Icon



When you click on this icon, the currently selected controller scans its channels again to make sure that all the drive configuration information is current. The configuration information will be updated to the latest one.

Display Log Icon

Displays the log, as shown below.



NOTE: Power Console Plus logs all the events to the Raid.log. The Raid.log file is created in the same directory where Power Console Plus runs.

If the Power Console Plus is installed in "C:\Program Files\MegaRAID", then "C:\Program Files\MegaRAID\Client" will become the working directory.

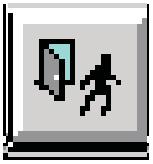
NVRAM Icon

Displays the NVRAM log.

Bad Block Log Icon

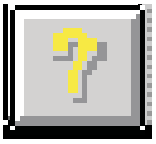
Displays the Bad Block information on a drive.

Exit Icon



Quits Power Console Plus.

Help Icon



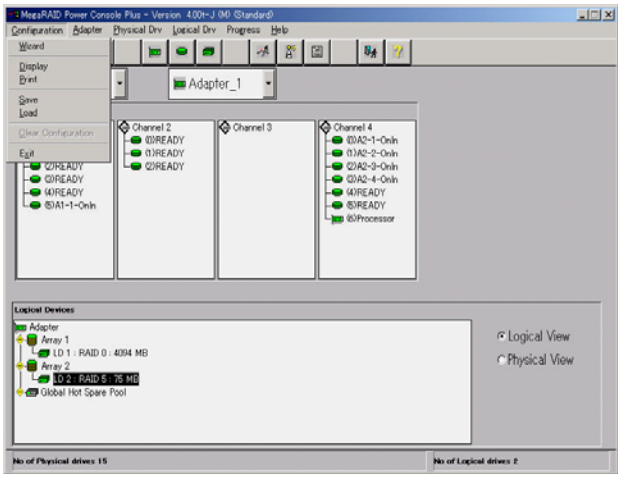
Displays information about Power Console Plus.

4.2 MENU BAR OPTIONS

The Power Console Plus menus are:

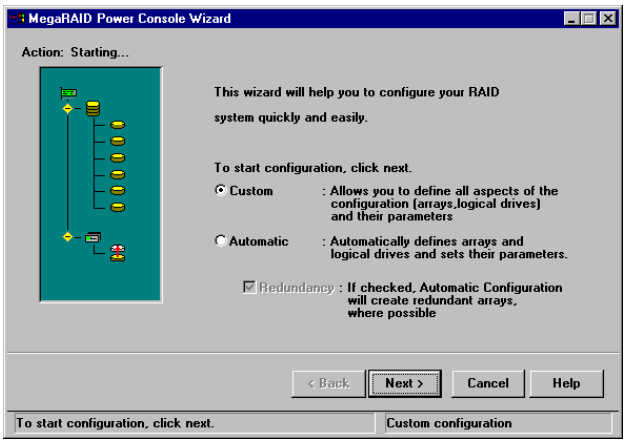
Option	Description
Configuration	Choose this option to start the Power Console Plus Wizard to configure the RAID system.
Adapter	Choose this option to select controller-related functions. You can enable or disable the speaker, and start the performance monitor.
Physical Drv	Choose this option to rebuild and display the properties of the physical drives.
Logical Drv	Choose this option to initialize, display the properties, and check the consistency of the logical drives.
Progress	Choose this option to view the progress of a disk rebuild, initialization, check consistency, reconstruction or to view the performance monitor.
Help	Choose this to display information on Power Console Plus.

Configuration Menu



Wizard

Use the Wizard to configure the drive. Choose Custom or Automatic array configuration. When the Wizard starts, the following dialog box appears:

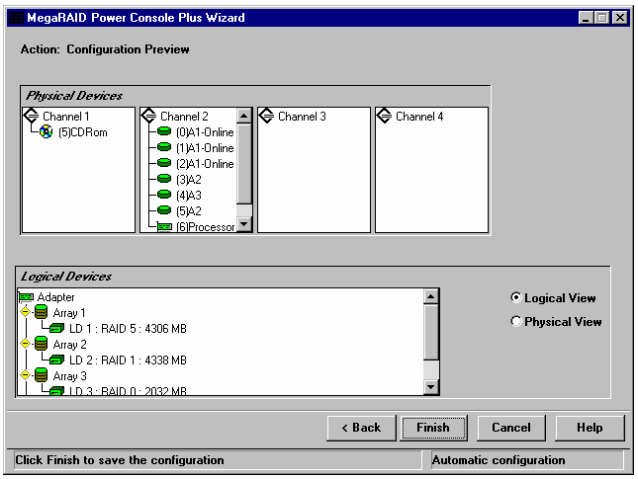


Custom Configuration is selected on this dialog box.

Automatic Configuration :

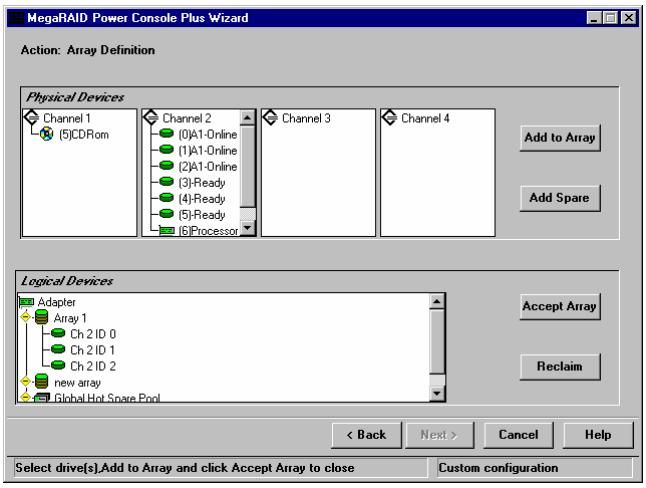
The Wizard examines the system (e.g., connected physical drives and check mark on Redundancy checkbox) and automatically configures an optimal RAID system. Select [Automatic] and click on [Next].

The screen shown below appears.



Custom Configuration：

You can determine the configuration by specifying in detail the physical drives to be used and the logical drive to be created. Select [Custom], and click on [Next]. The screen shown below appears.



Select the drive of your choice and click on [Add to Array]. You cannot add a drive to an existing array while running the Wizard.

Select a drive for hot spare and click on [Add Spare] to add Hot Spare drives.

> Even if the wizard is completed and the hot spare added, it may not be displayed on the screen. In that case, please click [Rescan].

Click on [Accept Array] if you approve the suggested configuration.

Click on [Reclaim] to clear the last configured array.

Click on [Next] to accept the proposed configuration. Follow the on-screen instructions to complete the configuration process.

> The following logs may be registered at the time of creation of an array.
>
> Source: MegaServ
>
> ID: 6107
>
> Description: CheckConsistency is COMPLETED.

Display

Displays the current RAID system configuration.

Print

Prints the current RAID system configuration.

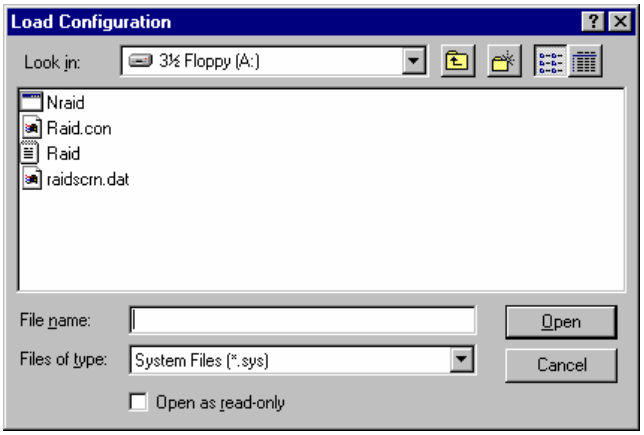
SAVE

Saves the current RAID configuration to a hard disk or floppy disk.

LOAD

Loads a previously saved RAID configuration. When this option is selected, the dialog box shown below appears. Select the correct directory path and type the configuration filename.

> **IMPORTANT:** This feature is for maintenance purposes only. The user should not execute any of these functions. Improper operation may cause a loss of data.



Clear Configuration

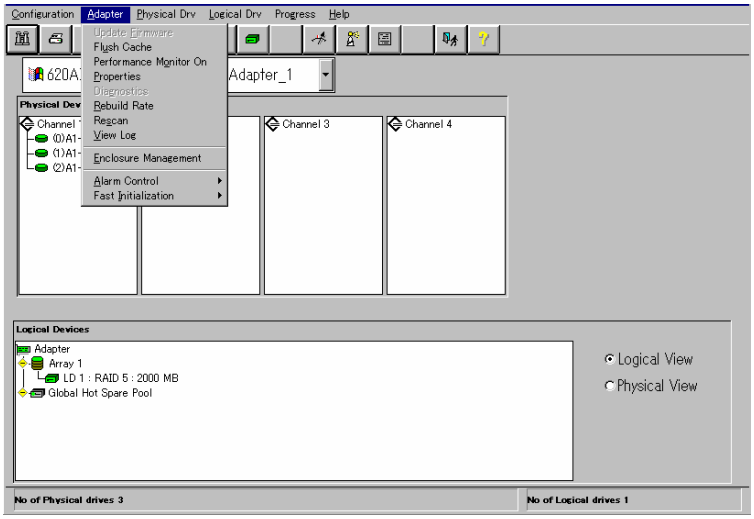
Clears the disk array configuration information.

> **IMPORTANT:** Do not use this feature, it erases all the configuration information.

EXIT

Exits Power Console Plus.

Adapter Menu



The Adapter menu options are described below.

Option	Description	Remarks
Update Firmware	–	This option is not available.
Flush Cache	Forces the controller to write the contents of cache memory to the logical drives.	
Performance Monitor On/Off	Graphically displays the performance of a logical drive. You can select a bar graph or a line graph. This option can only turn the feature on or off.	
Properties	Displays the controller properties, including the SCSI specification type, cache memory size, rebuild rate, and firmware and BIOS versions.	
Diagnostics	–	This option is not available.
Rebuild Rate	Changes the rate at which drives are rebuilt.	
Rescan	Scans the SCSI channels again.	
View Log	Displays a MegaRAID event log.	
View NVRAM Event Log	Displays the NVRAM log.	
View Bad Block Log	Displays a drive Bad Block information.	
Enclose Management	Manages the drives in each physical RAID drive cabinet. A picture of a RAID enclosure is displayed. The actual real-time state of each RAID channel is displayed. You can monitor the addition and removal of the devices in the enclosure online.	
Option	**Description**	**Remarks**
Alarm Control	Enables or disables the system alarm when the physical drive fails.	
Fast Initialization	Enables or disables the Fast Initialization.	

Battery Status	Displays a controller battery information.	
S.M.A.R.T.Setting	Sets up the S.M.A.R.T. function. Please do not change.	
Disable(Enable) Check Consistency Restoration	Depends on whether the mismatching detected with the adjustment check is restored. Please do not change.	
Disable(Enable) Temp Offline RAID	Sets up a Temp Offline function. Please do not change.	
Manage Patrol Read	Sets up a Patrol Read function.	

Flush Cache

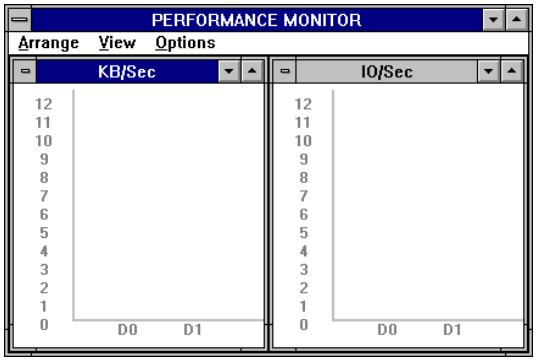
If the MegaRAID system must be powered off immediately, you must flush the contents of the cache memory to preserve the data integrity.

Performance Monitor

Choose "Performance Monitor On" from the Adapter menu to display a graphic representation of the drive performance.

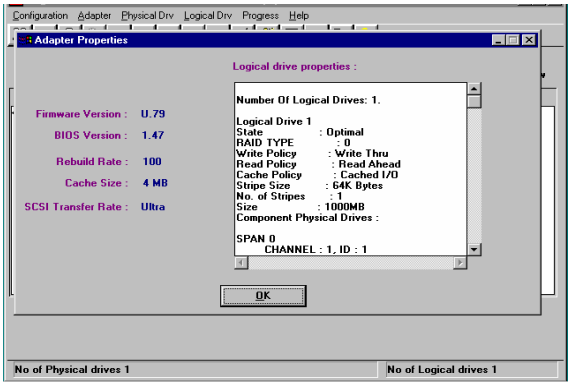
Choose "Performance Monitor Off" to disable this feature.

You can choose a logical drive, the type of graph, and the screen arrangement from this menu.



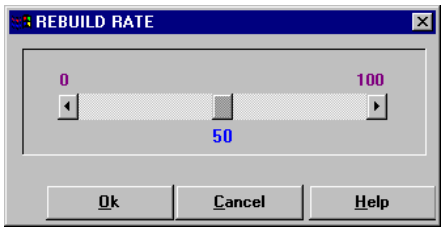
Properties

Choose this option to display the controller properties.



Rebuild Rate

Choose Rebuild Rate to select the amount of system resources to be devoted to rebuilding failed disk drives. Click on the slider to select the percentage of system resources to devote to the disk rebuild and click [OK].



NOTE: The higher the percentage, the more computing power is devoted to the rebuild. Choose a low percentage to minimize system performance problems.

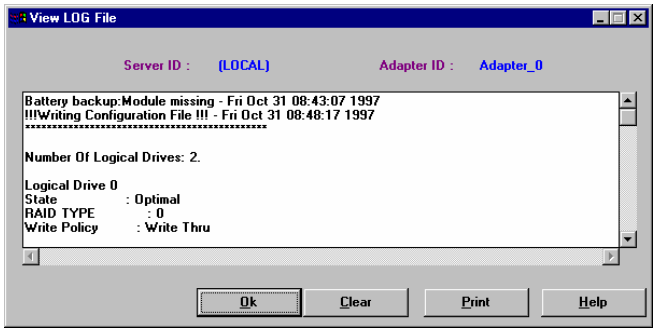
IMPORTANT: The highest rebuild rate may cause a system error. We recommend you set a rebuild rate equal to or less than 30.

Rescan

Choose this option to scan all SCSI channels again to update the status of all the attached SCSI devices.

View Log

Select this option to display the MegaRAID event log.



View NVRAM Event Log

Displays the NVRAM log.

View Bad Block Log

Displays the drive Bad Block information.

Enclosure Management

Displays the RAID drive enclosures status. Three icons for each drive enclosure appear. Click on an icon to display the cooling fan, power supply, or temperature for each drive enclosure.

Enclosure Management Icons

When you click on one of the icons, the status of the power supply, fans, and the temperature of the drive enclosure appear.

Icon	Description
	Displays the current status of the power supply in the enclosure for the selected subsystem.
	Displays the current status of the cooling fans in the enclosure for the selected subsystem.
	Displays the current temperature of the enclosure for the selected subsystem.

Alarm Control

The alarm beeps when one or more physical disks fail. The alarm sounds until Silence Alarm is selected.

Once a rebuild is complete, a beep signals that the rebuild is done. Choose Silence Alarm at this time to silence the alarm.

The alarm settings are:

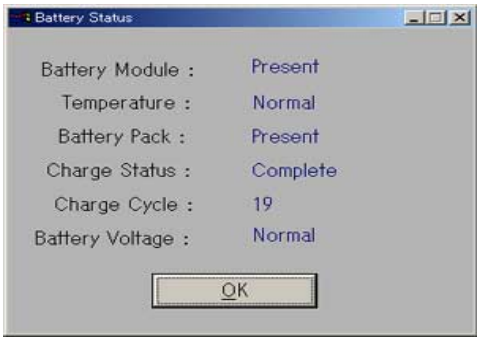
Setting	Description
Enable / Disable Alarm	When the Alarm Control option is selected and if Disable Alarm appears, the alarm is enabled and can be disabled. If Enable Alarm appears, the alarm is disabled and can be enabled. When the alarm is enabled, a beeping sound occurs even when all the logical drives are online and there are no failed disks after a hot spare rebuild completes. Use the Silence Alarm function to stop the alarm.
Silence Alarm	Stops the alarm if it is currently beeping. If the alarm is not beeping, it has no effect.

Fast Initialization

Specify whether to perform a fast initialization. Always set to "Enable" (default).

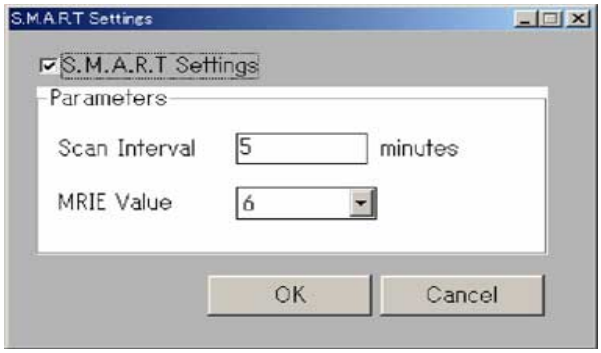
Battery Status

The battery information on a controller is displayed.



S.M.A.R.T. Setting

Sets up the S.M.A.R.T. function. Please do not change.



Disable (Enable) Check Consistency Restoration

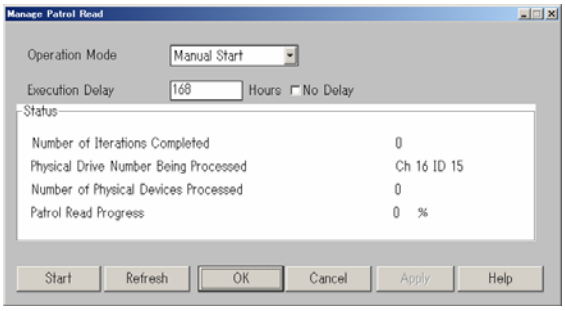
Depends on whether the mismatching detected with the adjustment check is restored. Please do not change.

Disable (Enable) Temp Offline RAID

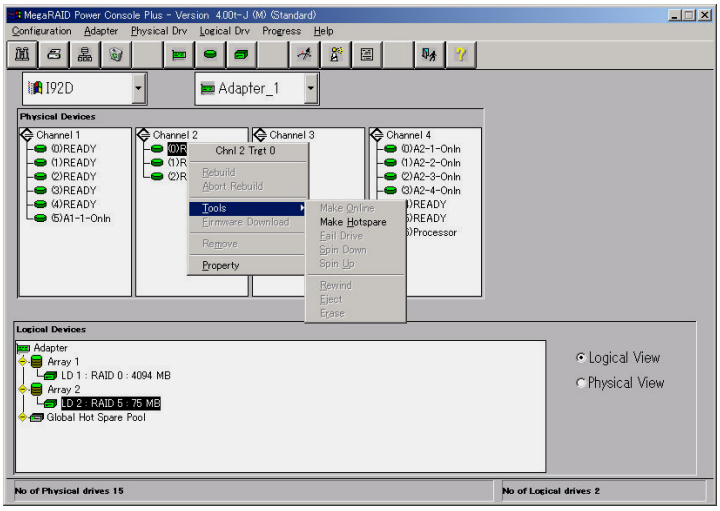
Sets up a Temp Offline function. Please do not change.

Manage Patrol Read

Sets up a Patrol Read function.



Physical Drive Menu



Rebuild

Choose the Rebuild option to rebuild one or more failed disk drives. Select [Abort Rebuild] to stop the rebuild process at any time. The drive will revert to its status before the rebuild began.

A RAID 1 or 5 configuration features redundancy. If a drive in a RAID group fails, the RAID subsystem continues to work but the redundancy is no longer provided for, meaning that another drive failure will bring the system down. Rebuild the failed drive and add it to the RAID system using the rebuild feature. The rebuild process can take place while the RAID system is still running, although the system performance may be slightly affected.

Update Drv Firmware

This option is not available.

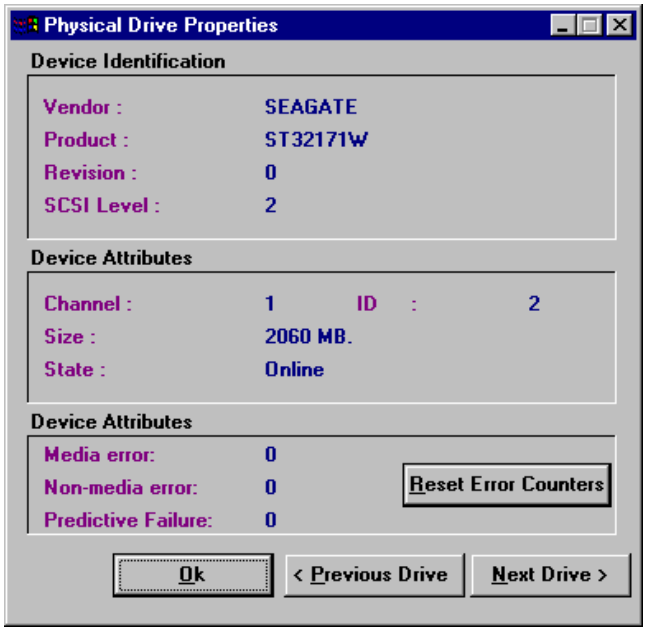
Change Status

Choose this option after you have selected a target physical drive.

Option	Description
Make Online	Brings the selected physical drive online.
Fail Drive	Takes the selected physical drive offline.
Spin Up	Allows a period of time for the selected physical drive to reach operational speed.
Spin Down	Allows a period of time for the selected physical drive to stop spinning before taking the drive offline.
Make Hot Spare	Designates the selected drive as a hot spare. Hot spares are automatically brought online to replace failed disk drives. These physical drives are powered up along with the RAID drives and usually are placed in a standby state. Hot spares can be used for RAID levels 1 and 5. Click on the drive icon of the drive to be made the hot spare. This drive must have the same or a greater capacity than the other drives in the RAID array.

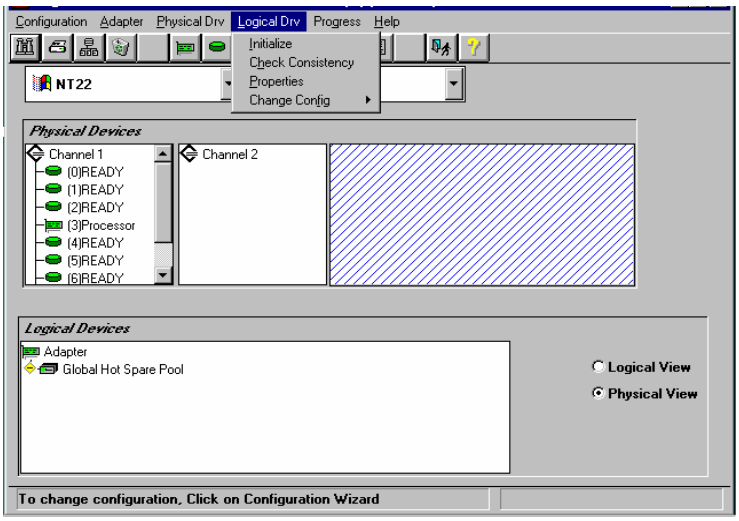
Property

Choose this option to display the properties of the selected physical drive.



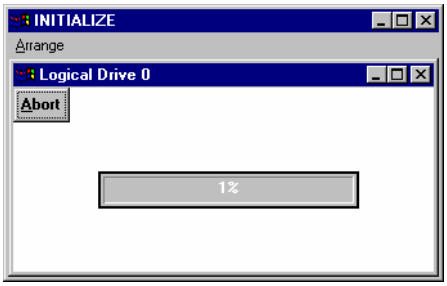
If you select [Processor] to display properties, the [Insertion] may be incorrectly displayed.

Logical Drv Menu



Initialize

Choose this option to initialize the selected logical drive or drives. The initialization progress is displayed. The time required for the initialization depends on the type and capacity of the physical drive.



IMPORTANT: Power Console Plus allows you to initialize a drive at any time. Make sure that the drive being initialized does not have live data. All the data will be lost.

Check Consistency

Choose this option to verify the redundancy data in the logical drives that use the RAID levels 1 or 5.

Select the logical drive to be checked and choose [Check Consistency] from the [Logical Drv] menu.

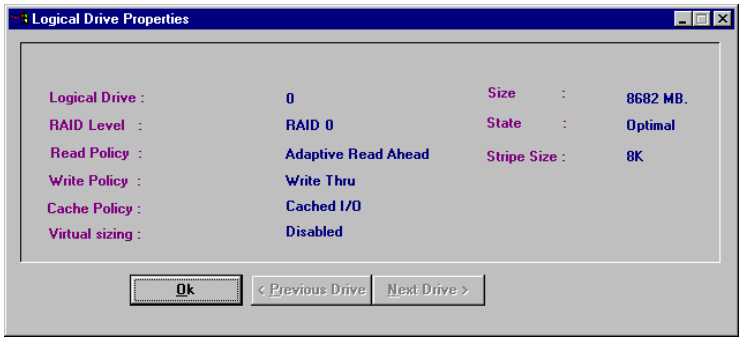
You are prompted to run a parity checking. Click on [OK] to perform the parity checking.

Parity Checking Selected Device(s) ?

If a discrepancy is found, it is automatically corrected. However, if the failure is a read error on a data drive, the bad data block is reassigned with the generated data.

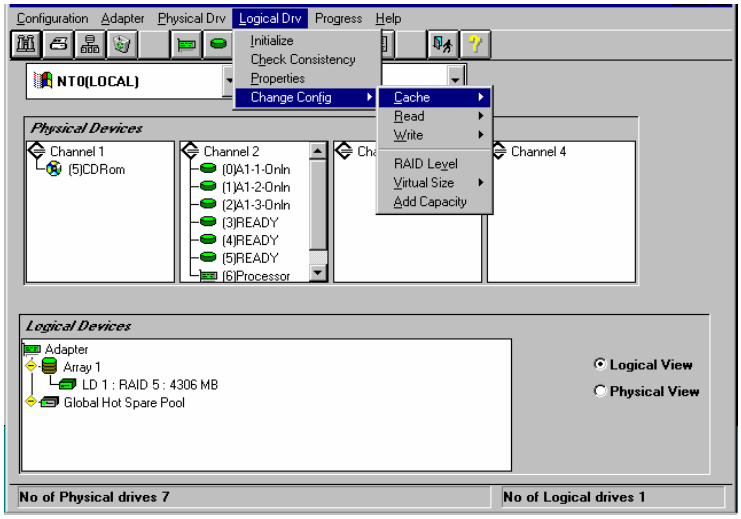
Properties

Choose [Properties] to display the properties of the selected logical drive. Each logical drive can be displayed by selecting the [Previous] or [Next] buttons. Indications on the screen may not be aligned, however, it will not affect on other operation.



Change Config

You can change the Cache Policy, change Read Policy, change Write Policy, and change the RAID level via this sub-menu.



– Change Cache Policy

  You can choose Direct or Cached.

– Change Read Policy

  You can choose Normal, Read Ahead, or Adaptive Read Ahead.

Read Policy	Description
Normal	The controller does not use read-ahead for the selected logical drive. This is the default setting.
Read Ahead	The controller uses read-ahead for the selected logical drive.
Adaptive Read Ahead	The controller uses read-ahead if the two continuous disk accesses occurred in sequential sectors. If all read requests are random, the controller does not use read-ahead. However, all requests are still evaluated for possible sequential operation.

Change Write Policy

You can choose Write Back or Write Thru.

Write Policy	Description
Write Back	The controller sends a data transfer completion signal to the host when the controller cache has received all the data in a transaction.
Write Thru	The controller sends a data transfer completion signal to the host when the disk array has received all the data in a transaction. This is the default setting. Write Thru has a data security advantage over Write Back. Write Back has a performance advantage over Write Thru.

Virtual Sizing

This feature is not available.

Add Capacity

Click on this option to add additional physical drive(s) to the specified logical drive. First click on the drive icon for each physical drive to be added. Then click on the icon for the logical drive to be added to.

Select [Add Capacity] from the [Logical Drv] menu, and click on [OK] when prompted to confirm the new logical drive configuration.

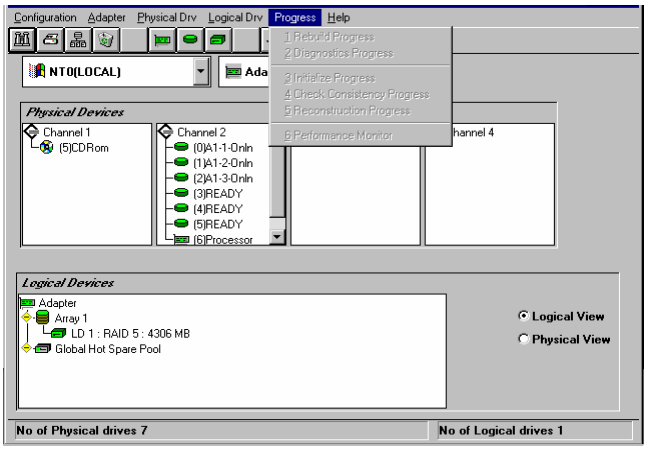
Select a new RAID level. You can select any RAID level that is not grayed out. Click on [APPLY] to complete the operation.

NOTES:

- A physical drive must be in the READY state before it can be added to a logical drive.
- No operation can be started during a drive reconstruction.
- With Windows 2000, Add Capacity is available only for a basic disk, not for a dynamic disk.

Progress Menu

The features on this menu are available only when a rebuild, initialization, check consistency, or drive reconstruction are in progress.



Option	Description
Rebuild Progress	Displays the rebuild process progress.
Diagnostics Progress	Displays the diagnostics test progress.
Initialize Progress	Displays the initialization progress.
Check Consistency Progress	Displays the Check Consistency progress.
Reconstruction Progress	Displays the reconstruction progress.
Performance Monitor	Displays the Performance Monitor screen.

5. Running Power Console Plus

This section describes how to run Power Console Plus.

Described below are simple terminology and basic operations.

Drive Status

The statuses of each physical drive shown to the right of the SCSI ID or array are as follows:

Drive Status	Code	Description
Online	Onln	The physical drive works normally. It is part of a configured logical drive.
Ready	READY	The physical drive works normally. It is not part of a configured logical drive and is not a hot spare. It is sometimes displayed with “Master”, too.
Hot Spare	HOTSP	The drive is available as a spare drive in case an online physical drive fails.
Failed	Failed	The physical drive is out of service because it failed.
Rebuild	Rebuild	The physical drive is being rebuilt.

Logical Devices

Logical Devices View displays the configured arrays, logical drives, hot spares and the global hot spare pool of the current controller.

Click on the [Logical View] radio button on Logical Devices View to display the configured logical drives. Click on [Physical View] to display the configured physical drives.

To delete the created logical drive, click [Delete] from the context menu which chooses a logical drive. Be careful not to use it accidentally.

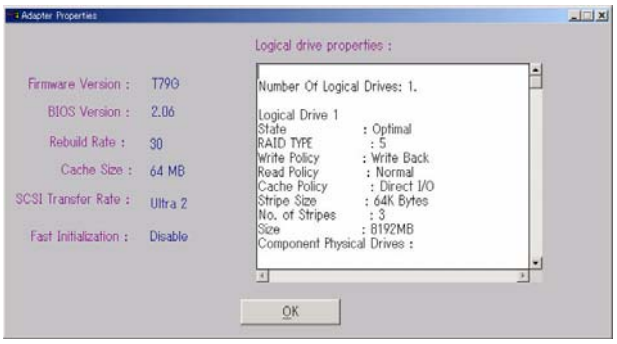
Note that when two or more logical drives exist, you can only delete the latest one you created.

Displaying Adapter (Controller) Properties

Click on [Properties] in the [Adapter] menu to display the adapter properties (shown in the figure below).

You can view the firmware version, BIOS version, and rebuild rate of the current controller.

You can also view the RAID level and size of the logical drive created in the current controller.

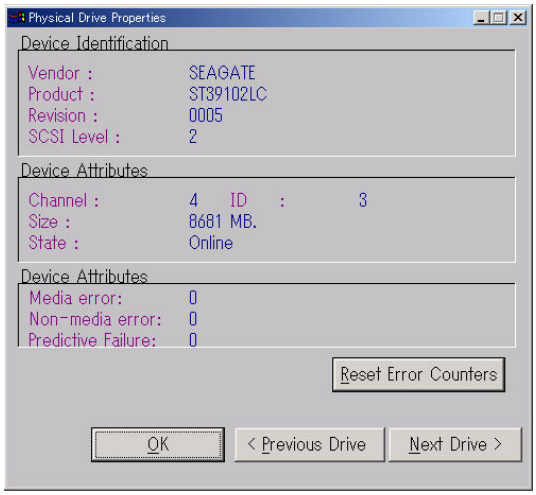


Displaying the Physical Drive Properties

Double-click on the icon that represents the physical drive to display its properties.

You can view the vendor and size of physical drive.

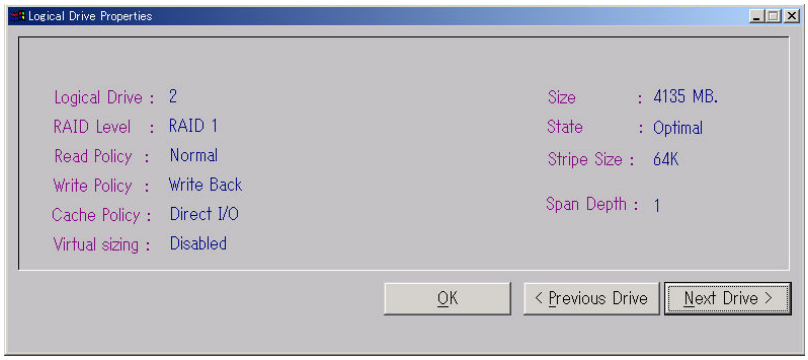
You can view the properties of each physical drive by clicking [Previous Drive] or [Next Drive].



Displaying the Logical Drive Properties

Double-click on the icon that represents the logical drive to display its properties.

You can view the RAID level, read policy, and size of the logical drive.



Choose an Adapter (Controller)

If the current controller is not the controller to be configured, click on the [Adapter] box and select the correct adapter.

Power Console Plus can control the controllers displayed in the Adapter box. When multiple controllers are connected to the server, you can select a controller in the Adapter box you want to make MegaRAID Client monitor and control.

5.1 CONFIGURING THE ARRAYS AND LOGICAL DRIVES

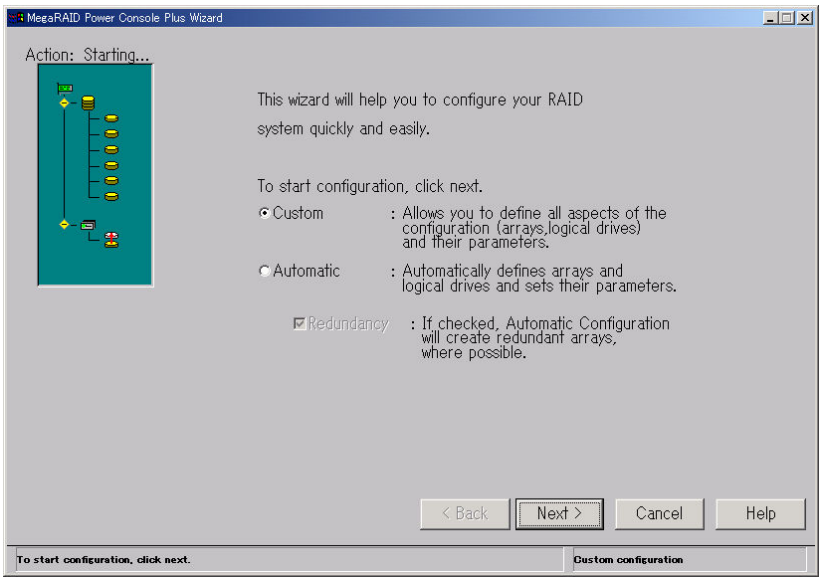
This section describes how to configure the arrays and logical drives.

Step 1

Choose the Wizard from the Configuration menu.

The Wizard screen appears. Choose [Custom] or [Automatic] mode and click on [Next].

Go to Step 4 if you choose [Automatic] mode.



NOTE: Types of Configuration

You can choose either Custom or Automatic configuration.

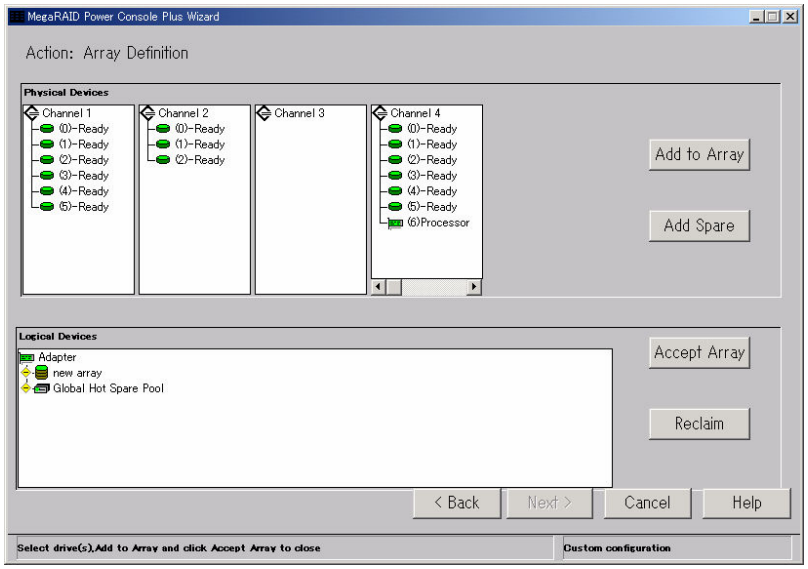
Type	Description
Custom	Set the parameters to define the arrays and logical drives. Select this option if you have specific requirements for the RAID system.
Automatic	The Wizard automatically sets all the parameters and defines the arrays and logical drives. Click on the [Redundancy] box to configure the redundant arrays. Select this option to configure an optimal RAID system.

Step 2

Select a physical drive in the Ready status.

Click on the [Add to Array] button to assign physical drives to the new array.

Click on the [Accept Array] button, and then click on [Next] button.



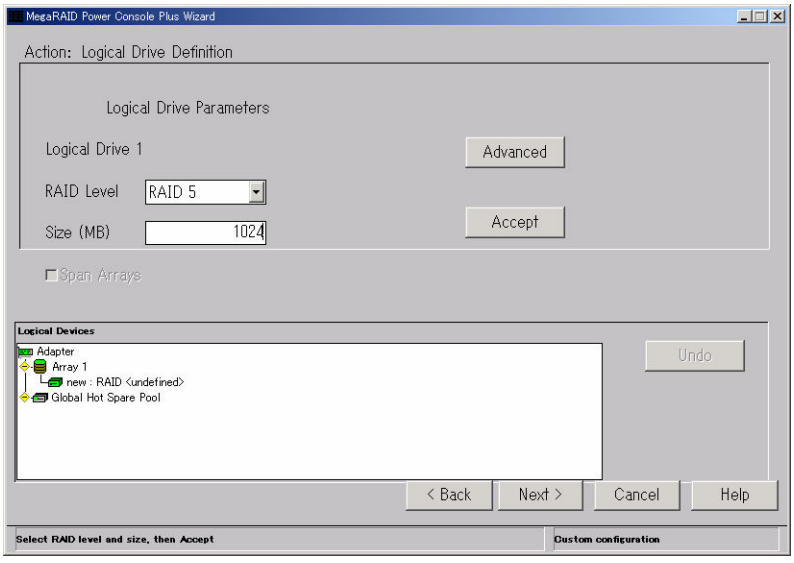
NOTE:: Assign all the physical disks used to configure a logical disk to [New Array]. For example, to configure an array of RAID5 level, at least three physical drives are required.

Step 3

Specify the RAID level and size of the logical drives.

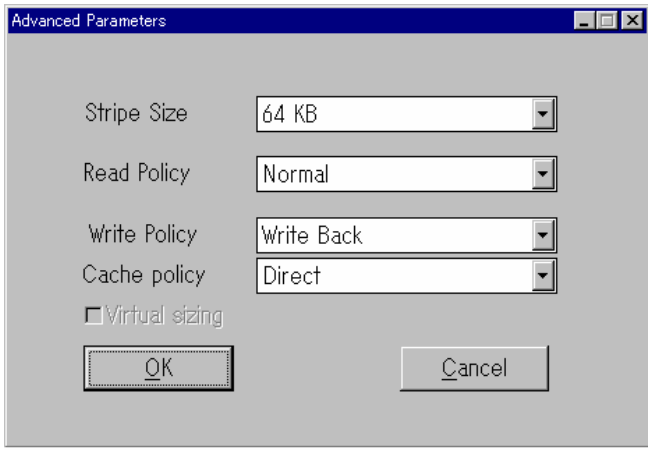
Click on the [Accept] button, and then the [Next] button.

Click on the [Advanced] button if you want to set the advanced parameters (e.g., write policy).



Setting the Advanced Parameters

Set each parameter on the screen.

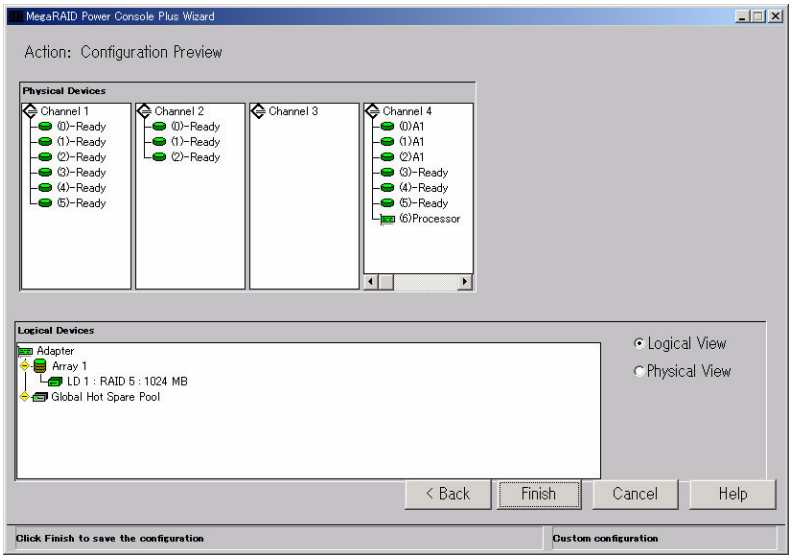


NOTE: Some parameter values may be restricted to ensure the system performance and stable operation. Refer to the manual that comes with your controller.

Step 4

Verify the array configuration on the screen.

If it is correct, click on the [Finish] button.



NOTE: In the example shown below, the Array1 (A1) containing a logical drive (RAID5, 1024MB) is created with three physical drives (ID0 to ID2) in channel 4.

Step 5

Click on [OK] when prompted to do so.

The new configuration is saved in the controller.

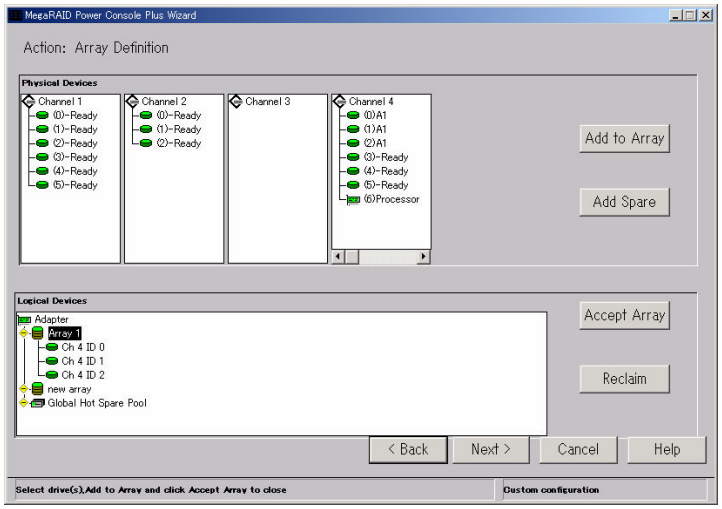
Step 6

Click on [OK] when prompted to do so.

Initializes the logical drive.

NOTE: If you canceled, select the logical drive on [Logical Devices View] in main menu, and select [Initialize] in the [Logical Drv] menu to initialize the drive.

Changing the Array Configuration



To change the array configuration, select the icon of a logical drive to be changed in [Logical Devices View], and click [Reclaim]. Click on [OK] when prompted to do so, and start again from Step 2. If no logical drives are defined in the array (Step 3 or earlier), click on [Back] to display the Array Definition screen and begin the configuration process again.

Adding a Physical Drive to an Existing Array

You cannot add a physical drive to an array while running the Configuration Wizard.

NOTE: To add a physical drive to an existing array, refer to Section 5.4.

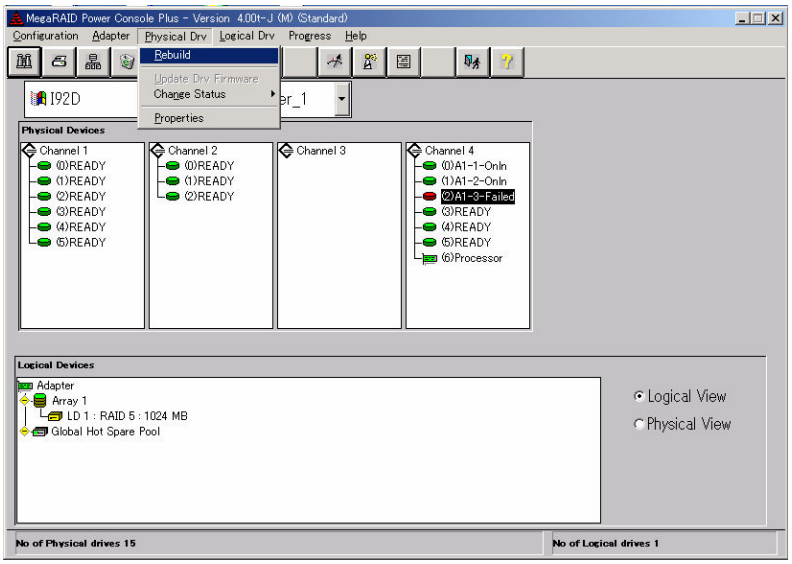
5.2 REBUILDING THE PHYSICAL DRIVE

This section describes how to rebuild the physical drive.

Step 1

On the [Physical Devices View] in the main menu, select a physical drive you want to rebuild (icon representing physical drive being failed).

Select [Rebuild] in the Physical Drv menu.



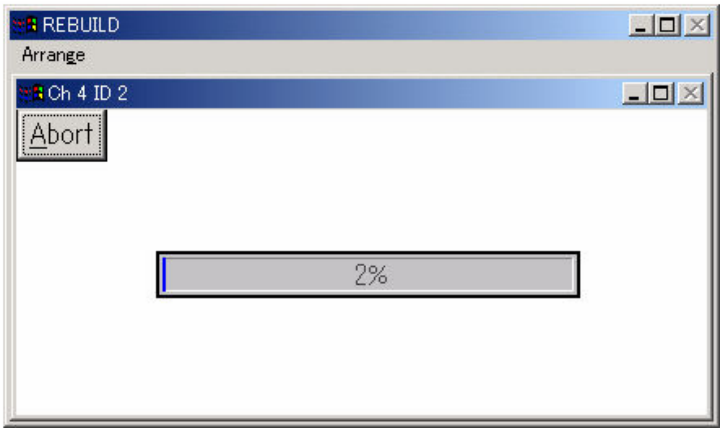
Step 2

Click on [OK] when prompted to do so.

The rebuild starts and a progress chart is displayed.

NOTES:

- Clicking on the [Abort] button stops the rebuild process.
- We recommend you check the status of logical drive once the physical drive is rebuilt. For Check Consistency, refer to Section 5.3.



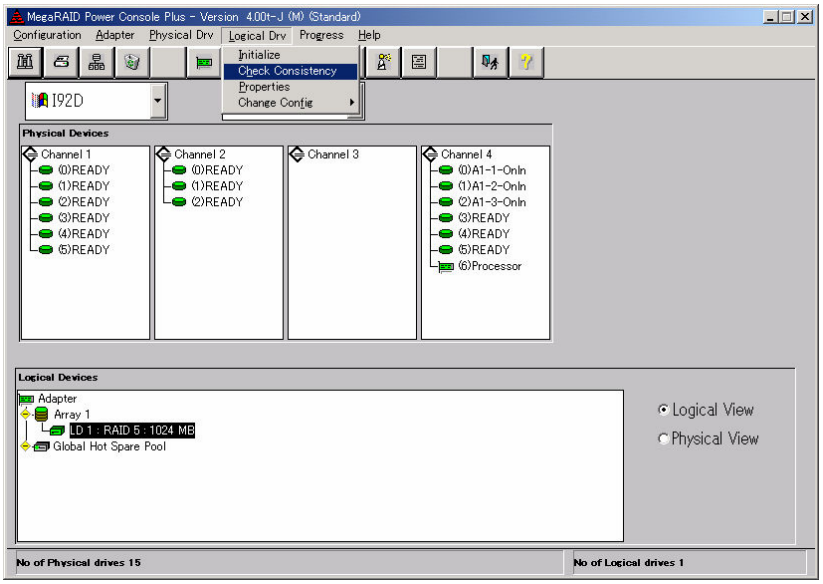
5.3 CHECK CONSISTENCY ON THE LOGICAL DRIVE

This section describes how to perform a consistency check on logical drive.

Step 1

Select the icon of the logical drive to be checked in the [Logical Devices View] on the main menu.

Select [Check Consistency] in the [Logical Drv] menu.

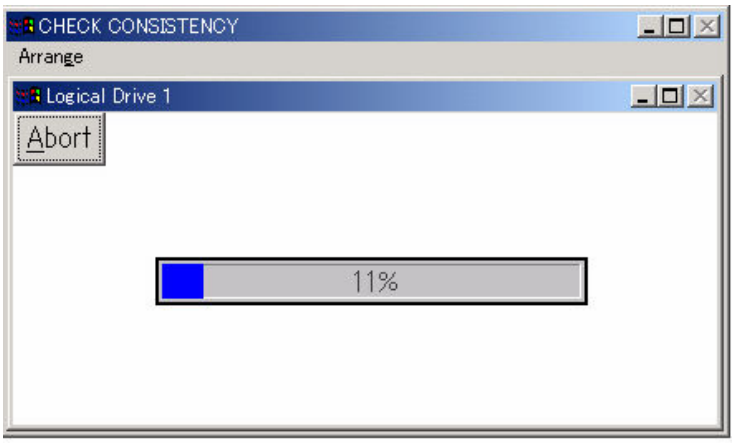


Step 2

Click [OK] on the confirmation screen.

The Check Consistency starts and a progress chart is displayed on the screen, as shown below.

NOTE: Clicking on the [Abort] button stops the Check Consistency process.



5.4 ONLINE CAPACITY EXPANSION

This section describes the procedures to expand the online capacity.

Add Capacity

You can add a physical drive to an existing array to expand the capacity only under the following conditions:

- **Only one logical drive is configured per array. (If two or more logical drives are configured, the Add Capacity feature is unavailable.)**
- **In the Windows 2000 environment, Add Capacity is available only for a basic disk, not for a dynamic disk.**
- **Please reboot the OS once the Add Capacity is completed. If the system is not rebooted, an error event may be periodically registered into the OS event log.**

NOTE: The available RAID level for the capacity added array depends on the number of physical disks configuring the array.

Two physical drives: RAID 0 or 1

Three or more physical drives: RAID 0 or 5

New drive(s) can be added to the SCSI bus or subsystem (e.g., disk rack).

IMPORTANT: We recommend you make a backup copy of the partition on the logical drive before adding capacity.

Please reboot the OS once the Add Capacity is completed. If the system is not rebooted, an error event may be periodically registered into the OS event log (Application Log).

Source : MegaServ.Log
ID : 6302
Type : Error
Description : Check Consistency FAILED.

Source : MegaServ.Log
ID : 6201
Type : Warning
Description : Check Consistency is OVER and corrected some problems.

Source : MegaServ.Log
ID : 6102
Type : Information
Description : Check Consistency is OVER and did not found any problem.

Adding Capacity using Power Console Plus

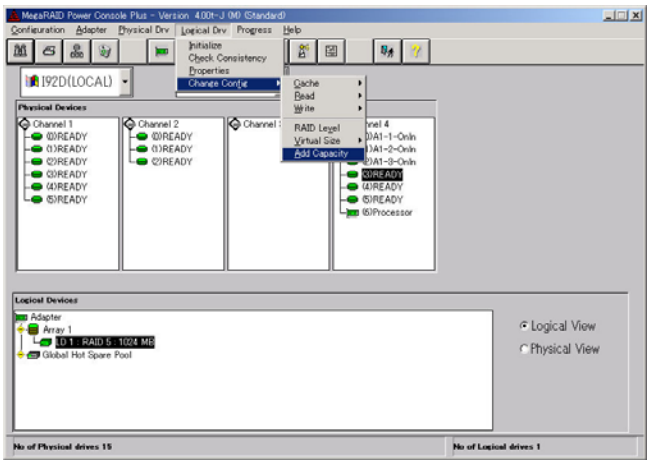
On the main Power Console Plus screen, check that the drive(s) that are added are displayed on the appropriate channel. There are three different ways to add a physical drive to an existing array.

The first method is:

Step 1

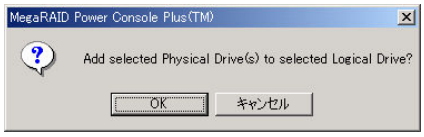
On the [Physical Devices View] of the main menu, select the physical drive(s) you want to add, and on [Logical Devices View], select the logical drive to add them to.

Select [Add Capacity] in [Change Configuration] of the Logical Drv menu.



Step 2

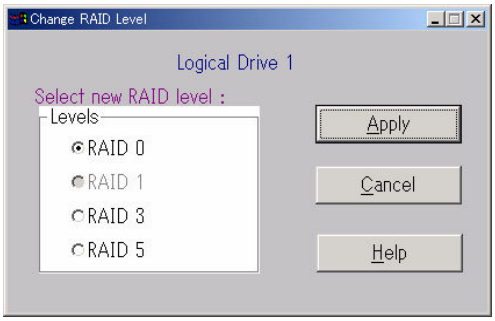
Click on [OK] when prompted to do so.



Step 3

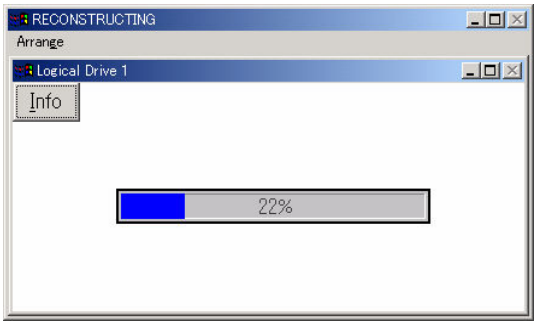
A menu to select the RAID level is displayed.

Select a RAID level and click on the [Apply] button.



Step 4

The array reconstruction (Add Capacity) starts and a progress chart is displayed on the screen, as shown below.



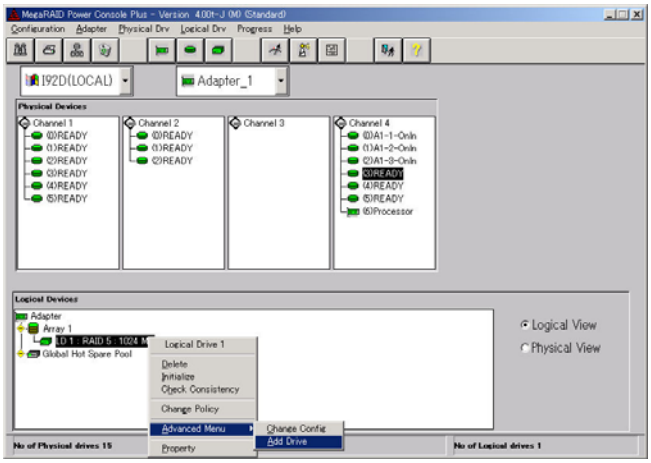
NOTE: You can view the information on the logical drive and physical drives to be added by clicking on the [Info] button while the progress chart is displayed.

The second method is:

Step 1

On the [Physical Devices View] of the main menu, select the physical drive(s) you want to add, and on the [Logical Devices View], select the logical drive to add them to.

Right-click on the logical drive, and select [Add Drive] in the Advanced menu.



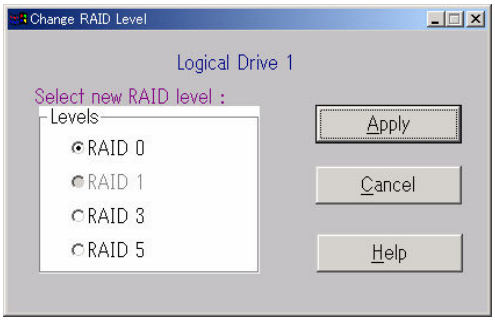
Step 2

Click on [OK] when prompted to do so.

Step 3

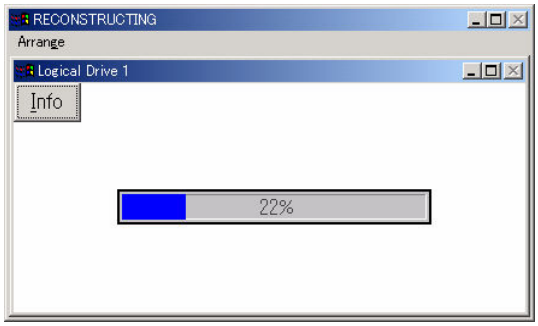
A menu to select the RAID level is displayed.

Select a RAID level and click on the [Apply] button.



Step 4

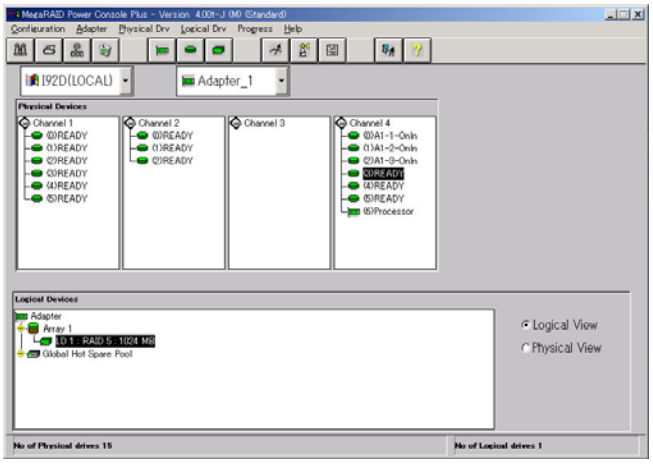
The array reconstruction (Add Capacity) starts and a progress chart is displayed on the screen, as shown below.



The third method is:

Step 1

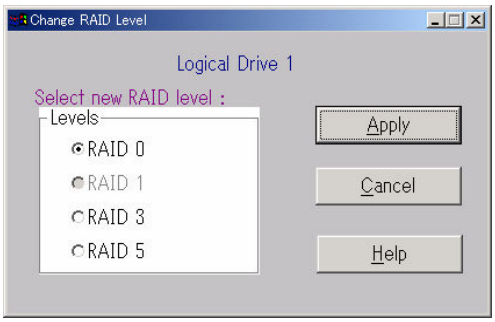
On the [Physical Devices View] of the main menu, select the physical drive(s) icon you want to add, and drag it to the logical drive icon you want to add them to.



Step 2

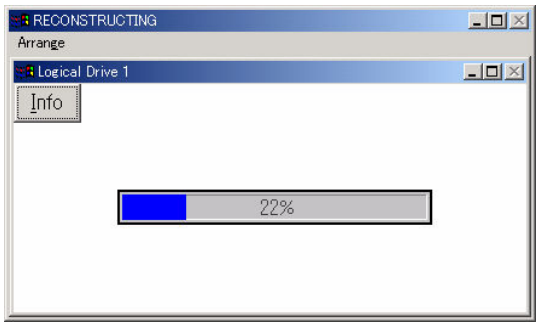
A menu to select the RAID level is displayed.

Select a RAID level and click on the [Apply] button.



Step 3

The array reconstruction (Add Capacity) starts and a progress chart is displayed on the screen, as shown below.



Once this is done, create a partition on Windows.

6. Periodic Consistency Check

The periodic consistency checks the array disks and correct any detected inconsistencies, preventing failures from occurring when rebuilding a failing physical drive.

The consistency check is made on the whole Read section of the logical drive. This means that all the areas of the physical drives are accessed, even those which are not usually accessed. The consistency check command also enables the detection of an imminent physical drive failure. Making a periodic consistency check decreases the multi-drive failure rate and maintains the steady operation of the array system.

A periodic consistency check can be performed by running the Check Consistency command from the command prompt. The command is for scheduling. When a consistency check is scheduled and performed, the running status (including start, end, and every 15 minutes) is output to the event log.

Requirements to execute the Check Consistency command

- The LSI Logic disk array controller must be connected.
- Power Console Plus must be installed.
- The MegaServ service is available.

Execute form

Format

megactrl arg1 [arg2 [arg3 [arg4 [...]]]]

(megactrl.exe is usually installed in "c:\winnt\system32" when Power Console Plus is installed.)

IMPORTANT: Do not use any other parameters than those noted below.

	Argument	Description
arg1	-cons	Sets a consistency check schedule. Other arg parameters are used to set the time. If no other arg parameters are specified, the relevant default is used.
arg2 to argi	-h	Sets the start time of the consistency check. The time can be set in the range from 0 to 23. (The default start time is 0.)
	-d	Sets the day of the week on which the consistency check is made in the range from 0 to 6. (The default day is 0 (Sunday).)
	-w	Sets intervals of 0 to 24 weeks at which the consistency check is made. -w0 indicates that the consistency check is made every day. (The default interval is 1 week.)
	-date MM/DD/YYYY	Sets the start date of the consistency check. (The default start date is the command execution date.) YYYY ranges from 1900 to 2038. (A year over 2038 cannot be specified.)
	-abort	Terminates the consistency check if it is in progress.
argi	-enChkCon	Executes the consistency check command at the scheduled time. (Default)
	-disChkCon	Suppresses the consistency check at the scheduled time. This suppression does not affect the current consistency check. If -disChkCon is specified with -enChkCon, the last-specified one is valid.

Examples of use

Executing the consistency check command at 00:00 every Sunday

```
megactrl  -cons  -h0  -d0  -w1
```

Terminating all the consistency checks of all controllers

```
megactrl  -cons  -abort
```

Disabling the consistency check schedule

```
megactrl  -disChkCon
```

Enabling the consistency check schedule

```
megactrl  -enChkCon
```

NOTE: The above commands need directory specification depending on the setting of the system path.

Example: C:\winnt\system32\megactrl -cons

7. Notes

1. The following event log is sometimes registered when uninstalling Power Console Plus. This is not a problem.

Source: Service Control Manager
Event ID: 7031
Description: The SNMP Service terminated unexpectedly. It has done this 1 time(s).

Source: Nobel Net Portmapper
Event ID: 0
Description: NobelNet Portmapper error